

# Innovations in Disaster Mental Health Services and Evaluation: National, State, and Local Responses to Hurricane Katrina (Introduction to the Special Issue)

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**Abstract** The severe consequences of Hurricane Katrina on mental health have sparked tremendous interest in improving the quality of mental health care for disaster victims. In this special issue, we seek to illustrate the breadth of work emerging in this area. The five empirical examples each reflect innovation, either in the nature of the services being provided or in the evaluation approach. Most importantly, they portray the variability of post-Katrina mental health programs, which ranged from national to state to local in scope and from educational to clinical in intensity. As a set, these papers address the fundamental question of whether it is useful and feasible to provide different intensities of mental health care to different populations according to presumed need. The issue concludes with recommendations for future disaster mental health service delivery and evaluation.

**Keywords** Disaster mental health services · Hurricane Katrina

On August 29, 2005, Hurricane Katrina made landfall near the Louisiana-Mississippi border as a strong Category 3 hurricane. The extreme winds, 27-foot storm surge, heavy

rains, levee failures, and subsequent flooding in New Orleans combined to create the costliest natural disaster in the history of the United States. According to its website, the Federal Emergency Management Agency (FEMA 2007) spent 4.8 billion dollars on public infrastructure projects for restoring roads, bridges and utilities and for removing an unfathomable 99 million cubic yards of debris. By 1 year postevent, nearly 950,000 applicants had been deemed eligible for individual disaster assistance, and more than six billion dollars in aid had been provided to them, the most ever provided by FEMA for any single natural disaster. Costs included over \$4 billion in housing assistance and nearly \$2 billion in assistance for medical, mental health, transportation, and other needs. Billions more were paid out in federal insurance claims. Over 120,000 FEMA travel trailers and mobile homes were leased, of which 100,000 remained in use 1 year after the storm. At the time of this writing, over 3 years postdisaster, life still has not returned to normal on the Gulf Coast.

Despite the enormity of these economic costs, they are dwarfed by the human costs of this disaster. Hundreds of thousands of residents of New Orleans and the Gulf Coast were displaced by the storm, creating the largest population of internally displaced persons in the history of the United States. At one point, every state in the union hosted “Katrina evacuees,” as persons displaced by the hurricane came to be known. The diaspora separated survivors from family and friends and severely disrupted social networks. Saddest of all, Hurricane Katrina directly or indirectly caused 1,800 deaths, including 1,300 deaths during the period of impact and 500 more by May 2006 (Hunter 2006). Survivors’ trauma, bereavement, loss, and sense of abandonment were laid bare for all to witness in the seemingly unending coverage on cable television news.

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Within days of the storm, mental health specialists and program planners were predicting that the mental health consequences of Hurricane Katrina would be enormous. On the basis of past research, the Substance Abuse and Mental Health Services Administration (see Power 2007) estimated that 25–30% of persons living in the hardest-hit areas would have clinically significant mental health problems and that another 10–20% in these areas would have subclinical but still significant problems related to the storm. Including the 5–10% of persons living in less severely affected areas predicted to have problems, these prevalences would sum to about 500,000 coastal residents with mental health service needs, far beyond the ability of local health care systems to meet.

Needs assessments conducted within weeks of the storm further exposed the potential mental health consequences of the disaster. Seven weeks post-Katrina, the Centers for Disease Control and Prevention (CDC) assessed health-related needs in Orleans and Jefferson Parishes by interviewing a random sample of 166 residents who had returned to the area (CDC 2006a). On a brief screening instrument of postdisaster distress, 33% of the sample evidenced “probable” need for mental health services, and an additional 17% evidenced “possible” need. In a separate assessment of 912 police officers and 525 firefighters conducted at approximately the same time, (CDC 2006b), one third of respondents evidenced clinically significant levels of depression, posttraumatic stress disorder (PTSD), or both. These findings, striking as they are, paled beside concurrent results emerging for shelter populations. In San Antonio shelters, for example, 62% (of 300 respondents) showed high levels of nonspecific psychiatric morbidity, and 56% screened positive for possible PTSD (CDC 2006c).

More rigorous epidemiologic investigations followed over the ensuing months and provided perhaps the most convincing evidence that Hurricane Katrina had tremendous and lasting public health impact. Of these, the best known is the Hurricane Katrina Community Advisory Group (CAG), a sample of over 1,000 adults first interviewed 5–7 months post-Katrina. The sampling frame (largely list-based) was carefully constructed to include evacuees no matter where they lived at the time of the survey. Nearly a third of this sample screened positive for any 30-day mood or anxiety disorder on the K-6, a brief measure of nonspecific psychological distress. More specifically, 11% evidenced serious mental health problems (a K-6 score  $\geq 13$ ), 20% evidenced mild to moderate mental health problems (a K-6 score of 8–12), and 16% screened positive for current PTSD (Galea et al. 2007). Rates of serious problems were twice those found in the same region in 2001–2003 (Kessler et al. 2006). One year later, when 815 participants were reassessed (Kessler et al.

2008), the prevalence of PTSD had increased to 21%, serious mental health problems to 14%. This finding contrasts with the general trend in disaster research for the prevalence of psychological problems to decline after the first year (Norris and Elrod 2006).

Other epidemiologic studies similarly documented high prevalence of mental health problems. In a survey of 366 residents of FEMA group and commercial trailer parks conducted approximately 8–9 months after the hurricane struck, 50% met study criteria for major depressive disorder, 20% had suicidal ideation, and 14% had increased substance use since displacement (Larrance et al. 2007). In the Mississippi Community Survey, 810 adults representative of the 23 southernmost counties in Mississippi were assessed 18 months postevent (Galea et al. 2008). The overall prevalence of PTSD since Katrina was 16% (20% in the coastal counties). Other smaller-scale or more localized studies have yielded similarly severe results (e.g., DeSalvo et al. 2007; Weems et al. 2007).

Taken together, these various projects leave little room for doubt that Hurricane Katrina had severe, pervasive, and lasting effects on the mental health of survivors. In contrast, use of formal mental health services has been low. The CAG Survey (Wang et al. 2007, 2008) showed that less than a third of adults with presumed anxiety or mood disorders had used any mental health services by 8 months postdisaster. Most of these services were provided by the general medical sector, with only 20% of serious cases and 5% of mild/moderate cases receiving care from a mental health specialist. Even among those who received services from mental health specialists, intensity of care was low: 64% of psychotherapy users received only one or two visits, and only 9% received eight or more. Put another way, only 11 respondents in the entire CAG sample of 1,043 (1%) had received a course of eight or more sessions of psychological treatment. Interestingly, among persons with new-onset disorders, the most common reason for failing to initiate treatment was low perceived need; 68% of non-users thought their problems would get better on their own over time. Much smaller percentages attributed their lack of service use to financial factors (18%) or service availability (11%).

The policy and program implications of such findings are far from clear. Do they call for widespread outreach to lower distress and build resilience in the entire population (Power 2007) or publicly-funded specialist treatment programs to serve the mentally ill (Weisler et al. 2006)? In our opinion, the ideal disaster mental health system does both; it would *combine* education and outreach for the general population with more intensive services for individuals at risk for severe or prolonged distress, and it would provide effective linkages (referrals) between the two levels of care. Thus, in this special issue, we seek to illustrate this

breadth, with an emphasis on mid- and long-term recovery from Hurricane Katrina. The empirical examples portray the variability of post-Katrina mental health programs, which ranged from national to state to local in scope and from educational to clinical in intensity.

It is important to recognize that the people to be served by disaster mental health programs are often new constituents who do not see themselves as “mentally ill” (Wang et al. 2007). To meet their needs, programs have to shift from a traditional, passive, and clinic-based model of care to a nontraditional, proactive, and community-based model (Hodgkinson and Stewart 1998). This is not an easy transition for many mental health systems, but the shift is quite consistent with the guidelines of the Crisis Counseling Assistance and Training Program (CCP). Authorized in 1974 by the Robert T. Stafford Disaster Relief and Emergency Assistance Act and funded by FEMA, the CCP is the primary vehicle through which disaster mental health services are provided in the United States. Based on the assumption that most disaster survivors are naturally resilient, CCPs emphasize outreach, supportive counseling, education, consultation, and linkages to other services.

Despite its 30-year history, the evidence base on the reach and effectiveness of crisis counseling programs is small. The urgency of getting new programs planned and implemented in the context of disaster leaves little time or energy for thinking about research, but progress is being made. The 2005 hurricane season marked the first time that grantees were required to collect standardized evaluation data. Prior to this policy change, the quality of any evaluation was vastly determined by the grantee; some programs, like Project Liberty (New York’s CCP after 9/11), conducted extensive evaluation (Donahue et al. 2006b), whereas others did little more than tally services, according to varying definitions. The “cross-site evaluation” plan borrowed much from the design of Project Liberty’s evaluation and includes both routine encounter logs and periodic surveys of providers and participants.

Directly or indirectly, all of the papers in this issue have ties to the CCP. The first paper in the series evaluates the national reach of the program after Hurricane Katrina (Norris and Bellamy 2009). Because of the massive displacement of Katrina survivors, FEMA made an unprecedented decision to open up CCP eligibility to all states hosting evacuees, as well as to the disaster-declared states of Louisiana, Mississippi, and Alabama. Over 30 states applied for and received Immediate Service Program grants, which are funded up to 60 days after the date of the Presidential disaster declaration, and 18 of these states subsequently applied for and received Regular Service Program grants, which are funded for 9 additional months (but are often extended). The degree to which this single program innovation was effective in reaching Katrina

survivors and evacuees is important to examine because there are a number of hypothetical disaster scenarios that could cause substantial displacement. To examine reach, Norris and Bellamy compared results from the 16 programs serving “undeclared” areas that received evacuees but were not hit by the hurricane and the three programs that served declared disaster areas directly affected by the hurricane. These “undeclared” and “declared” programs were compared on service volume, service practices, and characteristics of participants. In addition to using data from individual and group encounter logs, these authors also made use of “benchmarks,” external standards that facilitated judgments of the adequacy of program reach.

The second paper (Norris et al. 2009) focuses on 50 declared counties where service volume was highest and draws conclusions about factors (area, provider, and service characteristics) that influence area-level counseling outcomes. This paper represents one of the first attempts to empirically examine longstanding but untested assumptions that underlie the crisis counseling approach to post-disaster mental health service provision. The assessment of counseling outcomes is quite challenging for CCPs because of their non-clinical, community-outreach approach and the anonymity of participation, which precludes administration of pre-service measures or systematic follow-up. To our knowledge, there has been only one previous rigorous attempt to evaluate participants’ satisfaction with crisis counseling services (Covell et al. 2006; Jackson et al. 2006). The goal for our analysis was not so much to determine the overall level of satisfaction with services but to rather to determine how participants’ perceptions of benefit were influenced by program actions. The results have direct implications for improving the quality of care for disaster survivors.

The third paper (Rosen et al. 2009) examines in depth one of the most important actions of crisis counselors—referrals to other community services. It identifies factors that influenced the likelihood of referrals, with a particular focus on psychological services, which occurred infrequently despite presumed need. In terms of our overarching theme of integrating community and clinical services in the aftermath of disasters, referral is a critical link. The availability of detailed and consistent encounter-level data across different sites responding to Hurricane Katrina provided a unique opportunity to examine the referral process in crisis counseling. These analyses were guided by the Behavioral Model of Health Services Use (Anderson 1995), which examines service use as a function of client needs, factors predisposing clients to want to use services, and factors enabling access to services. Although the Anderson model has traditionally focused on client *help-seeking*, the authors extended this model to focus on counselor *help-offering*, i.e., likelihood of making a referral.

The next two papers in this special issue describe more intensive, localized efforts. The first of these (Jones et al. 2009) summarizes an evaluation of “Specialized Crisis Counseling Services,” a program piloted in Mississippi’s 15 southernmost counties in response to the high level of need demonstrated among Katrina survivors. These services aimed to reach an intermediate level of intensity for people who needed more than crisis counseling but perhaps less than longer-term professional treatment. An important innovation of this program was its team-based approach, which linked the services of a resource coordinator with a masters-level counselor who was trained in a variety of techniques. These results are exciting for showing the promise of a new model of crisis counseling and for showing how the presence of an existing evaluation infrastructure can be employed quickly to study the impact of program innovations.

The last of the empirical papers (Hamblen et al. 2009) describes an evaluation of *InCourage*, a program of relatively intensive services (10-session Cognitive Behavioral Therapy for Postdisaster Distress, CBT-PD) funded and implemented by the Baton Rouge Area Foundation (BRAAF) in Greater Baton Rouge, Louisiana. It is virtually unprecedented for a community foundation to offer evidence-based mental health services in response to a local disaster. This collaborative project involved BRAAF, the Baton Rouge Crisis Intervention Center, community-based service providers, and both local and nationally-based researchers. Hamblen first developed CBT-PD for Project Liberty’s “enhanced services” program, and it showed promising results when, along with other interventions, it was evaluated in a telephone survey of program participants (Donahue et al. 2006a). Building on these preliminary results, Hamblen and colleagues used a stronger quasi-experimental design for evaluating *InCourage*. The collection of data at five points provided a reasonably strong basis for drawing inferences about the effects of *InCourage* and illustrates an approach for evaluating community-based interventions when it is not possible to use an experimental design.

The special issue concludes with a “science-to-practice” commentary describing the process through which academic researchers affiliated with the National Center for PTSD collaborated with federal CCP administrators, state program directors, and the National Child Traumatic Stress Network over a 9-year period to improve practices in disaster mental health services and evaluation (Watson et al. 2009). This process, which included literature reviews, a number of expert panels, and case studies, is described. The products resulting from this process have included the development of a systematic cross-site ongoing program evaluation and field guides for service provision both in the immediate aftermath of a disaster and

down the road. The authors also discuss future directions for the field of disaster mental health services and evaluation.

Although each of the empirical papers in this special issue concludes with a discussion of its implications for policy and practice, we will make two overarching observations. First, as a set, these papers show that systematic evaluation can shed light on important issues in postdisaster service delivery. Although none of these studies achieve the standards of clinical trials, their contributions need to be interpreted in the context of the current state of the art, which has provided few data on the reach or effectiveness of postdisaster interventions. Conducting controlled trials is difficult given the logistical challenges after disasters, the community (as opposed to university) settings of the programs, and the ethical challenges of denying care. In this environment, we need to rely primarily on careful analysis of data obtained with observational or quasi-experimental designs. In this regard, Hurricane Katrina provided a valuable natural experiment: there was a large-scale event with geographic variation in service characteristics, use of consistent data tools in the CCP, and a range of services from less to more intensive (both within and outside of the CCP). The potential of programs like the CCP, SCCS, and *InCourage* to contribute to knowledge depends upon the presence of a strong evaluation infrastructure, in which data collection is integrated with service delivery. There is still little “evaluation culture” in disaster mental health, but these papers show evidence of significant progress in the field, and we hope it continues.

Second, in spite of the accomplishments of the programs described in these papers, the evaluations also highlight shortcomings in our present-day disaster response system and in our knowledge about factors that influence use of postdisaster mental health care. Katrina was unusual in that psychological symptoms remained high over a year after the event; there was less spontaneous remission than in typical disasters with shorter-lived resource loss and less disruption of community ties. Even though there was good community penetration of crisis counseling, and services were perceived as helpful, psychological distress in the affected communities remained high. This suggests limits on how much conventional crisis counseling programs alone can do in the face of catastrophic disasters. Increasing the frequency of referrals to treatment is part, but only part, of the solution. Although results from Mississippi and Baton Rouge show that interventions can produce significant and large improvements in mental health, it remains unclear whether most disaster victims have access to treatment that is appropriate and evidence-based.

By considering the programs described in this issue together, we can begin to envision a more comprehensive



system of disaster mental health care. It would continue to have a strong emphasis on outreach and education to meet the needs of the general public; it would facilitate transitions to specialized programs for persons at higher risk for prolonged distress; and it would have sound ways to determine who those persons are (e.g., Brewin et al. 2008; Norris et al. 2008). The need for further research that fosters the development of feasible, safe, and effective interventions is urgent. Yet, these evaluations also suggest that even where treatments are available and free, they are underutilized. Thus, there is also a continuing need for population-based research on how program structures (e.g., the extent to which mental health is integrated into other community services) and consumer beliefs (i.e., preferences, expectancies, and stigma concerns) influence perceptions and use of postdisaster mental health care.

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